

EXAMINATION OF ACCESS, USE AND TRUST FOR ONLINE HEALTH
INFORMATION AMONG COLLEGE STUDENTS

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Abstract

Health disparities are prevalent among ethnic minorities, including immigrants in the United States. These disparities come in the form of low health insurance, low social economic status, ethnic discrimination, language and cultural barriers. As ethnic minorities, international students also suffer from numerous health problems that are associated with their lower social, economic and immigration status when they come to the United States. Health communication is an effective tool for increasing health literacy and for reducing health disparities. Applying the uses and gratification theory and the staged model of trust, the study was conducted among 120 American students and 135 international students to examine the extent to which access to health information, the type of information accessed, how they use it, and how they determine what trustworthy information is differed between the two groups.

Key findings indicate that nutrition is the most common health topic accessed online by college students regardless of place of origin. Though both groups access online health information with the same motivation of information, they use online health information in different situations. Source credibility is the most important factor for college students in determining trustworthy health websites, and government websites and other health organization websites were found to be more trustworthy. The study also provides both theoretical and practical implications, which include consideration of ethnic backgrounds in disseminating health information through online channels and understanding the needs and motivation for people's access to health information and how they use it to be able to meet those needs. In designing health communication campaigns that target college students, the study proposes that the differences between native-born and international students need to be taken into consideration.

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Dedication

This thesis is dedicated to my mother, who supported me all these years unconditionally, I love you.

Chapter 1 - Introduction

The Internet is a valuable resource for many fields, including health. According to the 2010 report by Pew Internet, about 80 percent of Internet users and 61 percent of adults in the United States have used the Internet to search for health information. Many of them believed that the Internet had a great influence on their health decision-making. Other studies have also examined the role of Internet in health communication (e.g. Cassell, Jackson & Cheuvront, 1998; Hou & Shim, 2010; Rains, 2007; Rozmovits & Ziebland, 2004), its effectiveness in information access (e.g. Kemper, 2001; Williams, Huntington & Nicolas, 2003; Korp, 2006), and in addressing health disparities (e.g. Beacom, Newman, 2010; Gilmour, 2006). There are also studies that have specially focused on ethnic minorities with Internet access (e.g. Ku & Matani, 2001; Lariscy, Reber & Paek, 2010).

However, even with access to online health information, health disparities still exist where ethnic minorities are disproportionately affected by more health problems than others. In the United States, the numbers of uninsured in 2007 by ethnicity were 7.4 million for Blacks (19.5 percent), 2.2 million (16.8 percent) for Asians, and 14.8 million (32.1 percent) for Hispanics (Wait, Proctor & Smith, 2008). Recent data have also showed that immigrants are more likely to be without health-insurance coverage than U.S.-born citizens (Singh & Miller, 2004). Limited English speaking, reading and writing skills among ethnic minorities have a negative influence on their health literacy skills and health outcomes.

The most important advantage of the Internet in providing health information and addressing existing health disparities is that it is widely available, and its convenience and anonymity make it suitable for researching private issues (Williams et al., 2003). For people who seek health information and medical help, there are various types of online health resources available, such as health websites, online support groups, online self-management tools and tools for tracking personal health care (Rains, 2007; Rice,

2006; Warner & Procaccino, 2007). With this understanding, several health agencies, such as CDC and WebMD, have used the Internet to reach their public targets with the goal of disseminating information, increasing health literacy and motivating behavior change. Patients are encouraged to be more active and autonomous by seeking additional information beyond health care providers. In spite of the wide use of online health tools and online sources for health information, less than half of the medical information available online has been reviewed by doctors (Pew, 2010). Few sites provide sufficient information to support patients in their decision-making, and many health websites contain a lot of technical language, which can make the information difficult to understand (Smart & Burling, 2001).

Problem Statement

Social and economic disparities have long existed between native-born and immigrant groups. Low health insurance and low social economic status are directly linked to less access to health care. Low health insurance leads to a higher cost of visiting health care organizations and hospitals, and not enough preventative care and examination, such as cancer screening. Other factors including cultural and language barriers, racial/ethnic discrimination, social segregation and identity issue also make it difficult for minorities to seek health care in a system that is provided by the majority group (Adler & Rehkopf, 2007; Ahmed & Lemkau, 2000; Brach & Fraserirector, 2000; Singh & Miller, 2004).

Even though immigrants have better education, they are more likely to be unemployed and uninsured than U.S.-born citizens (Singh & Miller, 2004). Even at the same education level, they have lower income than U.S.-born citizens (Ward et al. 2004). The 2007 poverty rate for non-Hispanic Whites was lower than the rate for Blacks and Asians — 24.5 percent and 10.2 percent, respectively (Wait et al., 2008).

Immigrants are a special group with various health problems, but tend to have lower health insurance and less care than the native-born group. Language barriers,

culture barriers and social economic barriers have led them to low health literacy. Immigrants have their own distinct health patterns and problems compared with U.S.-born citizens. Disparities also exist across different ethnic minority groups and vary by culture. Yet there is still not enough focus on these special groups. Health care professionals need to understand the special needs of immigrants and should focus on their functional literacy and other health problems that contribute to health disparities. Understanding of the physical and mental health problems that are specific to immigrants will enhance the health communication professionals attempt to strategically target them with the appropriate messages. More research needs to be done because there has not been an effective solution, and the gap of health disparities has yet not been narrowed.

International students, as part of the ethnic minorities, also suffer health disparities and similar health problems. Since international students are younger, have been in the United States for a shorter period and have less experience in dealing with health issues, their problems are more severe than older immigrants. After leaving their home countries, international students have to endure a stressful period of adaptation. On one side, their bodies have to adapt to a new climate, new food and new time zone, which may cause physical unhealthiness; on the other side, international students also have some special mental and psychological issues. Problems commonly identified in the literature include loneliness, lack of support, few meaningful relationships with host nationals, culture shock, discrimination and racism, language difficulties, unfamiliar modes of teaching and learning, a changing sense of identity, unrealistic family and self-expectations, financial problems, crises at home, adverse experiences in the host country and diseases such as tuberculosis, nutritional deficiencies, obesity/diabetes, etc. (Carr, Koyama & Thiagarajan, 2003; Church, 1982; Edberg, Cleary & Vya, 2011; Kilinc & Granello, 2003; Lee et al., 2004; Mori, 2000; Sandhu & Asrabadi 1994, Wang & Sun, 2009).

Previous studies showed that in spite of the health problems they face, international students make less use of university services than expected (Carr et al., 2003); instead, they turn to the media, specifically online sources, for health information. The Internet has been regarded as a good source for health information and as a strategy for enhancing health literacy (Cassell et al., 1998) and patient empowerment (Xu, 2010), and in facilitating doctor-patient communication (Manganello & Clayman, 2011). This, however, may not apply to international students who have limited access to health care. However, it is of great importance to understand how these students seek health information, the nature of health information they access online, how they use that information and, more importantly, how they determine what are the trustworthy websites to rely on for health information. Such information is useful in addressing health literacy as a step toward reduction of health disparities in the U.S.

The aim of this study is to examine differences between international and native-born students regarding the health information they access, how they use the information and how they determine trustworthy health websites and health information.

Uses and gratification theory serves as a theoretical background for the current study (Blumler & Katz, 1974), which assumes that people actively turn to different media to fulfill different gratifications. Studies show that different conditions and motivations lead people to turn to media to gratify their needs (Baran & Davis, 2009) and that people accessing online health information are highly information-motivated (Hou & Shim, 2010; Ko, Cho & Roberts, 2005). The study uses the theory to examine those information needs and the motivations and situations for health information seeking among both native-born and international students.

The staged model of trust developed by Briggs, Simpson and Angeli (2004) provides a framework of how Internet users build trust with health websites and health information from an audience perspective. There are three stages of trust: the heuristic stage, the analytic stage and the integration stage. During the three stages, online health

information seekers rely on different factors to decide whether the website is trustworthy or not. The study tests different factors, such as visual appearance, content analysis and further interaction, to see what factors international and native-born students rely on to evaluate the trustworthiness of health websites.

Significance and Justification

Though previous studies have focused on health status of immigrants (e.g. Sentell, Baker, Onaka & Braun, 2011; Singh & Miller, 2004), few of them focused on international students. They also have not explored how international students gather and use health information, especially how they use the Internet for health information and to increase their health literacy. With an increase in the number of international students who come to the United States who may have numerous health needs in order to increase their health literacy, to narrow the gap of health disparities, and to provide better health care for them, it is imperative now to explore how health communication and online tools can be used to address their needs for health care.

This study is significant in the following three aspects. Firstly, although the topic of health disparities has been widely discussed in existing studies, few have actually focused on international students. It would be helpful to learn and understand the differences between international and native-born students regarding their Internet use for health purposes. Secondly, it provides an understanding of use and trust of online health information of college students. Different cultural communities may interact with health information, health concerns and health access in different ways, which could lead to variation in types of information students accessed and used. Thirdly, it provides suggestions, including what to address, how to better deliver health information and how to build trustworthy health websites for future online health campaigns that target college students. Effective health communication can increase health literacy and eliminate health disparities, and the Internet is a valuable tool for that purpose.

Chapter 2 - Literature Review

This chapter provides a review of previous literature on health disparities and online health communication. First, it addresses the health problems and disparities of minorities, immigrants and international students. Secondly, it examines the access of health information through the Internet, how the students use that information, and how they determine the trustworthiness of health information they access online. The chapter also provides a detailed theoretical framework of the overall study specifically focusing on the uses and gratification theory (Blumer & Katz) and the staged model of trust (Briggs, Simpson & Angeli), both of which are used in formulating research questions.

Health Disparities in Ethnic Minorities

To eliminate health disparities is one of the major public health goals for the current decade in the United States (U.S. Department of Health and Human Services, 2011). A health disparity is defined as inequality or a gap that exists between two or more groups in their access to and quality of health care compared with those of the general population (U.S. Department of Health and Human Services, 2011). Ethnic minorities in the U.S. including African Americans, Hispanic Americans, American Indians, Asian Americans, and Native Hawaiians/Other Pacific Islanders, experience significant health disparities as demonstrated by a shorter life expectancy and higher rates of diabetes, cancer, heart disease, stroke, substance abuse, infant mortality and low birth weight (National Institute of Health, 2010, p.1).

Health disparities exist not only between majority and minority groups, but also vary within different minority groups. To reduce health disparities, it is of great importance to learn and understand different health patterns, problems and disparities of different minority groups. For instance, Asians are thought to have lower incidence rates of breast cancer, but higher incidence rates of tuberculosis, diabetes, stomach cancer, lung cancer and liver cancer (Allan & Szafran, 2005; Freeman, Zonszein, Islam, Black & Strelnick, 2011; Singh & Miller, 2004; Ward et al., 2004). Although Asians and

Hispanics have lower overall mortality rates, they have shorter life expectancy than non-Hispanic Whites (Adler & Rehkopf, 2007). Studies on health disparities show that Hispanics have higher incidence rates of cervix cancer and breast cancer (Ward et al., 2004); Blacks have both higher adult and infant mortality rates (Fiscella & Williams, 2004); Africans have the highest incidence rate of HIV/AIDS, and African Americans consist of half the population that has HIV/AIDS in the United States (NIH, 2010); African Americans have higher rates of cardiovascular disease (Flessner et al., 2011) and overall African immigrants' health status is far below the White group and the life-long minority status for Blacks has a negative influence on their health (Read & Emerson, 2005).

According to Wait et al. (2007), the number of people below poverty is 9.24 million for Blacks (24.5 percent), 1.35 million for Asians (10.3 percent), and 9.9 million (21.5 percent) for Hispanics. The number of non-Hispanic Whites below poverty is 16.03 million, which is only 8.2 percent of its total population, much lower than Black, Asian and Hispanic. The number of people without health insurance is 7.37 million (19.5 percent) for black, 2.23 million (16.8 percent) for Asian, 14.8 million (32.1 percent) for Hispanic, much higher compared with non-Hispanic Whites, which is only 10.4 percent of its total population. Similar findings were also described in a study by Ward et al. (2004), in general, when compared with the White group, ethnic minorities had higher rates of poverty, lower education status and less access to health care coverage or a source of primary care. Asians, Blacks and Hispanics also have lower income than non-Hispanic Whites even at the same education level. Lower income leads to lower social economic status, and people with lower income are also discovered to have a higher percentage in the number of uninsured (Adler & Rehkopf, 2007).

Health Disparities in Immigrants

According to the Office of Immigration Statistics, there have been approximately 1 million people who have immigrated to the United States and have become permanent

residents since 2008, with Asian and Hispanic as the two largest growing groups. The top three countries of origin of immigrants were Mexico (13 percent), China (7 percent) and India (7 percent) (Monger & Yankay, 2011). Immigrants now represent 11.5 percent of the U.S. population, the highest percentage in seven decades (Singh & Miller, 2004).

Although the number of immigrants is increasing, there has not been an increase in health care for different immigrant groups (Singh & Miller, 2004). Immigrants are a special subgroup of ethnic minorities; they even have more problems concerning identity issue, cultural barrier, adaptation for both physical and mental health, etc. According to previous studies, there are several root causes for health disparities among immigrants, including less health care, racial/ethnic discrimination, segregation, cultural identity, communication barrier, mistrust and alienation, financial problems, low social economic status, lack of sources, etc. (Adler & Rehkopf, 2007; Cristancho, Peter & Mueller, 2008; Edberg, Cleary & Eyas, 2011; Fiscella & Williams, 2004; Freeman et al., 2011; Olafsdottir, 2007; Williams & Collins, 2001).

Williams and Collins (2001) argue that segregation is the first and primary cause of racial disparities in health that are associated with less access to educational opportunities, less access to employment opportunities, and less access to health care. Moreover, schools in segregated areas have lower test scores, and less advanced courses, poor quality education, all of which are attributed to social isolation, which weakens social networks and therefore leads to fewer employment opportunities (Williams & Collins, 2001).

Studies have emphasized social economic status (SES) as a significant factor for causing health disparities (Adler & Rehkopf, 2007; Fiscella & Williams, 2004; Freeman et al., 2011; Gordon-Larson & Popkin, 2011; Olafsdottir, 2007; Williams & Collins, 2001). Much evidence has showed that SES disparities lead to less access to health care (Cristancho et al., 2008; Ku & Matani, 2001; Wait, Proctor & Smith, 2007). There also are some other barriers to the access and use health care: lack of health insurance, limited

coverage of health insurance, high cost of health care services, communication issues, etc. (Cristancho et al., 2008). SES also plays an important role in determining disparities in health-related activities, and people with lower SES are found to have a lower level of self-reported health; therefore, it is even more important than race/ethnicity as a cause of health disparities (Williams & Collins, 2001). SES is correlated with race/ethnicity, and there is a concern in the literature that SES can be controlled, but this will either narrow the gap of health disparities or make it worse (Dressler, Oths & Gravlee, 2005). Braveman (2006) also suggests that SES should be both a part of the definition of health disparities and a way to measure health disparities. Similarly, low health status also leads to low SES and vice versa. People with poorer health, or disabilities, usually have lower education status, less employment opportunities and lower income than people without disabilities (Fiscella & Williams, 2004).

Racial discrimination, prejudice and stereotypes were also mentioned in previous studies as causes of health disparities. For instance, Balsa and McGuire (2003) found that some doctors have stereotypes toward patients, especially black patients. Doctors thought that “Whites cooperate, Blacks do not cooperate” during the treatment process. Some doctors act on a certain belief about patients from other cultures without checking whether it is right or wrong (Ahmed & Lemkau, 2000). Disadvantaged population groups with racial/ethnic discrimination have higher health risks as well (Gordon-Larson & Popkin, 2011). In addition, racial/ethnic discrimination or stereotypes often affect votes in public policies, allowing advantaged groups to have more privileged policies, while disadvantaged groups will not (Fiscella & Williams, 2004).

Health disparities also can be caused by cultural factors, miscommunication and language barriers (Ahmed & Lemkau, 2000; Betancourt, Green, Carrillo & Ananeh-Firempong, 2003; Brach & Fraserirector, 2000; Cross et al., 1989; Dressler et al., 2005). For instance, Asians avoid seeking mental health care activities because of stigma and their special attitudes and beliefs toward mental health care (Chen, Kramer, Chen &

Chung, 2005). Certain cultural beliefs in health and nonverbal communication can result in miscommunication between patients and doctors (Ahmed & Lemkau, 2000). It is important to understand that minority group members receive health care in a system that is provided and organized by majority group members (Brach & Fraserirector, 2000). According to Brach and Fraserirector (2000), diagnosis errors resulting from miscommunication, missed opportunities for screening because of the lack of familiarity with the prevalence of conditions among certain minority groups, failure to take into account differing responses to medication, lack of knowledge about traditional remedies, etc., could all lead to negative health outcomes. In addition, people from different cultures may have different understandings of symptoms and thresholds for seeking care. Patients' abilities to describe their symptoms to doctors, to understand doctors' prescription, and preferences for or against diagnostic and therapeutic methods, also have a great influence on their health outcomes (Betancourt et al., 2003).

Much evidence has showed that the lack of insurance directly leads to less access to health care (Cristancho et al., 2008; Pol, Adidam, & Pol, 2002; Sentell et al., 2011; Shin et al., 2005). The negative effects of low insurance include "less access to preventive care, high rates of emergency department use and avoidable hospitalizations, later-stage diagnosis of cancer, and the inability to obtain prescription medications" (Betancourt et al., 2003, p.118). Even after controlling the factors that are commonly thought to have influence on health insurance (e.g. SES, income, education, etc.), immigrants are still twice as likely to be uninsured than their native-born counterparts (Pol et al., 2002). Immigrants do not have enough preventive care, such as mammography and screening for chronic disease, since they have inadequate health insurance (Ward et al., 2004). Low health insurance also leads to fewer visits to hospitals and other health organizations because it is expensive (Shin et al., 2005), especially for some long-term treatment of chronic diseases (Cristancho et al., 2008). Both immigrants and their children have suffered low health insurance, and data show that "immigrants

face serious barriers in getting both regular ambulatory care and emergency room care” (Ku & Matani, 2001, p.252). Even with insurance, noncitizens and their children have less access to medical care than insured native-born citizens have (Ku & Matani, 2001).

Health Disparities in International Students

According to the Open Doors report (2010), which is published annually by the Institute of International Education (IIE) with support from the U.S. Department of State's Bureau of Educational and Cultural Affairs, the number of international students at colleges and universities in the United States increased to 690,923 during the 2009-10 academic year. Chinese student enrollment in the United States increased by 30 percent in the 2009-10 academic year to a total of nearly 128,000 students, making China the leading sending country of students to the U.S.

International students and immigrants are in the same category with other minorities in the U.S. with regard to health disparities. These disparities might be wider based on their young age, low health literacy and lack of experience in healthy lifestyles. Adjusting to a new environment and coping with changes could contribute to poorer health situation among this group. As Mori points out, they are considered to be “the most silent, invisible, underserved group on American campus” (p.143). Being away from home, family and friends, the adaptation period must really be stressful. Age and the length of stay have been viewed as factors associated with well-being in the adaptation period (Rosenthal, Russell & Thomson, 2006). On one hand, factors such as a new place, new food, new time zone and new climate affect international students’ physical health; on the other hand, new people, new school, new social network and a new learning style put a lot of pressure on their mental health. It is found that Blacks and Hispanics perform at levels below non-Hispanic Whites in college (Kugelmass & Ready, 2011); the pressure of academic performance puts a burden on international students and affects their mental health. Problems such as culture shock, loneliness, language barrier, lack of emotional support, financial problems, homesickness and learning difficulties are

most likely to occur in international students (Carr et al., 2003; Church, 1982; Kim, 2011; Sandhu & Asrabadi, 1994; Wang & Sun, 2009).

In spite of all the problems international students encounter, they make less use of the university services, especially counseling services than expected compared to American students (Carr et al., 2003; Kim, 2011; Mori, 2000; Russell, Thomson & Rosenthal, 2008). For example, students from Asian countries were less likely than their non-Asian counterparts to think they needed medical help or to actually use it, but as for the perceived need of counseling help, Asian and non-Asian students show no big difference (Russell et al., 2008). Bradley (2000) found that many international students were not clear about the counseling service, were not sure about the counselor, the nature of the relationship or how the services help and whether their personal information would be shared with someone else. They were also unclear about boundary issues with their personal supervisor (Bradley, 2000). Bradley also found that many international students were more likely to share their problems with other international students, especially people from their own ethnic group. Asian students, in particular, have negative feelings toward counseling. Their feelings of self-concealment, which is a way to avoid losing face (losing face is very important value in East Asia), have a negative influence on them toward receiving counseling help (Liao, Rounds & Klein, 2005).

Previous studies also found some particular health problems among American college students; the most common problems include drug abuse, alcohol abuse, mental depression, etc. (Kitzrow, 2003; O'Malley & Johnson, 2002; Wechsler, Lee, Nelson & Kuo, 2002). Underage drinking is a severe problem among college students; near half of underage students had a drinking experience (Wechsler et al., 2002). According to the research on college student health provided by the American College Health Association's National College Health Assessment (NCHA), there was an increasing trend of mental depression among American college students (American College Health Association, 2003), which partly results from early drug and alcohol use (Kitzrow, 2003).

The mental depression among American college students has negative influence on both their social and institutional performance (Kitzrow, 2003).

Health Literacy

As defined by the U.S. Department of Health and Human Services (2010), adult health literacy is the degree to which individuals have the capacity to obtain process and understand basic health information and services for appropriate health decisions.

Functional health literacy means that individuals can apply literacy skills to health-related material and can confidently participate in dialogue and discussions, interpreting charts, making decisions about participating in research studies, using medical tools for personal or family health care, calculating the timing or dosage of medicine, or voting on health and environmental issues (An & Muturi, 2011; Ozdemir, Alper, Uncu & Bilgel, 2010).

Education, culture and language are three main factors that determine one's health literacy, and low health literacy often is often associated with people who have limited English proficiency, such as recent immigrants and international students (Nielsen-Bohlman, Panzer, Hamlin & Kindig, 2000). Evidence shows that adults with limited English language skills have a lower level of health literacy in the U.S. (Rudd, 2007), and limited language skills to speak and understand often result in poor health communication and health disparities (Farmer, Papachristou, Gotz, Yu & Tong, 2010; Karliner, Crewe, Pacheco & Gonzalez, 1998). Having good health literacy is of great importance in reducing health disparities and also directly affects one's health-related activities. Limited health literacy has a negative influence on patients' ability to seek and use health information, adopt healthy behavior and react to health alerts (Nielsen-Bohlman et al., 2000).

Low health literacy also was commonly found in minorities and immigrants (Boiko, Katon, Guerra & Mazzoni, 2005; Johnson, 2011; Paasche-Orlow & Wolf, 2010; Sentell, Baker, Onaka & Braun, 2011). Filipinos had the highest rates of low health literacy (23.9 percent), followed by 20.6 percent of other Asian Americans and Pacific

Islanders, 16.0 percent of Japanese, 15.9 percent of Native Hawaiians, and 13.2 percent of Whites (Sentell et al., 2011). Low SES, education, income and limited access to health care all lead to low health literacy (Fiscella & Williams, 2004). Health literacy affects a patient's understanding and interpretation of health information, such as a doctor's description, and the ability to make health decisions; therefore, low health literacy has a negative influence on health outcomes (Gilmour, 2007). The communication between health literacy and communication platform is important in understanding the way people seek, access and use health information (Yip, 2012).

Internet and Health Communication

There are various definitions of health communication. The Centers for Disease Control and Prevention defined health communication as “the study and use of communication strategies to inform and influence individual and community decisions that affect health” (cited in Schiavo, 2005, p.5). Another definition by *Health People 2010* is “the art and technique of informing, influencing and motivating individual, institutional, and public audiences about important health issues” (U.S. Department of Health and Human Services, 2005, p.11)

The Internet has been used as a tool for health communication, and it is a comprehensive channel for both mass communication and interpersonal communication, which is important in persuasive communication. Similar to interpersonal communication, it provides immediate, transactional feedback that can be used to make behavior change in health outcomes (Cassell et al., 1998). Health communication has a significant influence for both message receivers and publishers; because they could exchange roles among each other, users are no longer constrained to time and space limitation for exchanging information (Caplan, 2001).

E-health is using communication technology, such as the Internet, to increase people's health literacy and health care services, including “online communities and support groups, online health information, online self-management tools, online

communication with health care providers, and online access to personal health records” (Health.gov). It is also defined as “the use of emerging information and communication technology, especially the Internet, to improve or enable health and health care” (cited in Neuhauser & Kreps, 2003, p.12).

One advantage for e-health is that it involves the audiences in the whole process of exchanging information; audiences now can select, interpret and respond to questions (Neuhauser & Kreps, 2003). Another important advantage of health communication is that it could easily reach the specific needs of special individuals or communities (Kreps, 2000), which fits right into the method of reducing health disparities. For instance, immigrants and international students, who have special health problems and health concerns, could use e-health as a tool to access and use the information to fulfill their needs. Several studies also have found that e-health has significant positive effects on behavioral health outcomes (Balas et al., 1997; Lewis, 1999; Revere & Dunbar, 2001), from which e-health had been proven for increasing health literacy.

The technology of e-health and online health information are regarded as ways to increase health literacy and eliminate health disparities (Beacom & Newman, 2010; Gilmour, 2006). Some health organizations, such as CDC and NIH, and other health professionals also use the Internet as a platform to promote health communication and health information (Chamberlain, 1996). Online health information comes in various types, such as official websites of health organizations, blogs and online support groups for those who access online health information (Cotton & Gupta, 2004; Rains, 2007; Rice, 2006; Tanis, 2008; Warner & Procaccino, 2007; Ybarra & Suman, 2006). Most people go online without a clear purpose or a definite research plan. The usual way is to start at a search site, not a medical site, and visits two to five sites during an average visit (Rice, 2006).

Access of Online Health Information

People seek online health information for various reasons, such as a specific medical condition, a health problem, new medication or course of treatment, unanswered questions after a doctor's visit, diet or exercise habits, etc. (Pew, 2003). Another study done by Fox and Rainie (2000) found that about 90 percent of the participants searched for health information about a specific condition rather than for information about healthy lifestyles or health care services. Similar results were found in the British study done by Nicholas et al. Among the 1,322 respondents, 97 percent accessed the Internet for information about a specific condition, 57 percent performed a search regarding a visit to their doctors and 52 percent had searched for nutrition, exercise or weight control information (Nicholas et al., 2003).

The e-health and online health communication improves the health services in rural and remote areas, and it also allows underserved populations, such as immigrants and international students, to have an equal chance to access advanced medical technology and provides support for health professionals. It also allows vulnerable populations to communicate at home, especially on some private and sensitive topics (Bower, Barry, Reid & Norrie, 2005). The access to online health information also allows patients to participate in and have more control of the whole process, which enhances patients' satisfaction (Murray et al., 2003). The information that patients access has great influence on their health decision-making and physician-patient relationships (Hou & Shim, 2010; Korp, 2006; Murray et al., 2003).

However, despite the fact that online health information is widely accessible to all population groups, it is found that only 2 percent of health websites provide a language other than English and only 1 percent is usable for people with limited health literacy skills (Lazaras & Mora, 2000). There is a concern that the Internet may broaden the gap of health disparities rather than increase health equity (Gilmour, 2007). Another study suggests that if the disadvantaged groups could get more access to the Internet, they may use online health information to convey more benefits (Murray et al., 2003). The Pew

Survey also found that most people access online health information only infrequently: 2 percent every day, 4 percent several times a week, 14 percent several time a month, 32 percent every few months (Pew, 2003).

Use of Online Health Information

Most people seek online health information in order to be better prepared when they visit their doctors or to be better informed (Rozmovits & Ziebland, 2004). People seek online health information because they think they will benefit from the information so they can deal with their health problems well (Mead, Varnam, Rogers & Roland, 2003). Nowadays, people are much busier than decades past and have limited time for medical help. Waiting in the consulting room is time-consuming; therefore, people are looking for a more efficient and convenient way to seek medical help. Patients often think doctors don't give them enough detailed information to make sensible choices about their treatment (Carvel, 2005).

There are also different uses and purposes of people seeking online health information. For instance, patients could gather information before visiting a doctor, alternative or experimental treatments or medicines, and use online health information for a sensitive health topic that is difficult to talk about (Pew, 2000). A study on Internet health information-seeking (Rice, 2006) found that the most popular health topics searched for by Internet users include specific disease or medical problem (63 percent), a certain medical treatment or procedure (46 percent), diet/nutrition/vitamins/nutritional supplements (44 percent), exercise or fitness (35 percent), prescription or over-the-counter drugs (345, alternative treatments or medicines (28 percent), Medicare/Medicaid (9 percent), problems with drugs or alcohol (8 percent) and how to quit smoking (6 percent).

The Internet also provides feelings of social support and identity and gives users enough time to explore alternative approaches to health care (Cassell et al., 1998; Gilmour, 2007; Korp, 2006; Liao et al., 2005). There is also a strong relationship between

Internet use and patients' self-efficacy and health behavior (McMullan, 2005). The Internet enables patients to communicate with their doctors and provides them a feeling of being centered (McMullan, 2005).

Information and communication technology can help reduce health disparities. In the face of all the health problems, international students need to turn to different sources in order to seek help. College students particularly like to turn to the Internet rather than to a family doctor or a parent to get health information and advice, especially for those people who seek advice on important but sensitive issues (Klein & Wilson 2003). College students are extremely active in seeking online health information and participating in online health program because colleges usually provide free Internet access (Escoffery, et al., 2005). The Internet not only provides plenty of health information but also social support, which is important for international students (Wang & Sun, 2009). International students often feel lonely during their adaption period, and loneliness results in a decrease in interpersonal communication, but an increase in Internet use (Perse & Rubin, 1990).

Trust of Online Health Information

Since the Internet has become a significant source for health information and has a great impact on patients' health behavior, it is important to make sure that people are accessing trustworthy information for the purpose of health literacy. . However, not even half of the health information online has been reviewed by medical professionals (Pew, 2000), and the language of many health websites was found to be jargon, which is difficult for patients to read, especially patients with low health literacy, such as immigrants and international students (Smart & Burling, 2001). An important factor influencing people's willingness to look for health information on the Internet is trust, which is significantly associated with the quality of information. More than half of online health information-seekers never check the credibility of the source, the time when the information was posted or the websites' privacy policies (Pew, 2003).

It is found that knowledge content, source expertise, message characteristics, and audience characteristics, ease of use, availability and accessibility are the most common criteria for evaluating online health information (Cline & Haynes, 2001; Eastin, 2001; Escoffery et al., 2005; Rice & Katz, 2001; Risk & Dzenowagis, 2001). A patient's risk to encounter low-quality information or websites is associated with large number of such websites and the patient's ability to find trustworthy websites (Eysenbach, Powell, Kuss & Sa, 2002). Learning the trust issues of online health information among international students, who have limited health literacy skills, is an important step to improve the quality and credibility of online health information.

Age and gender are also two key factors affecting trust of online health information identified in the research literature (Church, 1982). Elderly and middle-age people are more likely to trust online health information, and females generally have a higher level of trust than males (Brodie et al., 2000; Hesse et al., 2005; Rice, 2006). Other evidence showed that younger students experienced more psychological distress than older students (Rosenthal et al., 2008). Blacks have less trust with online health information and more have higher concerns about their privacy online than White people (Brodie et al., 2000).

Theoretical Framework

Uses and Gratification Theory

Previous studies have examined Internet use and gratification (e.g. Cuillier & Piotrowski, 2009; Ko, Cho & Roberts, 2005; Stafford, Stafford & Schkade, 2004). Uses and gratification theory may explain why international students use the Internet for health communication. Blumler J.G. & Katz, E. (1974) developed the uses and gratification theory, and according to Baran & Davis (2009) there are some "social situations" where people turn to the media to fulfill their need of gratification. Such situations include "production of tensions and conflicts, leading to pressure for their easement through media consumption; creating an awareness of problems that demand attention,

information about which might be sought in the media; impoverished real-life opportunities to satisfy certain needs, and the media can serve as substitutes or supplements; eliciting specific values, and their affirmation and reinforcement can be facilitated by the consumption of related media materials; provide realms of expectation of familiarity with media, which must be met to sustain membership in specific social groups; and, providing realms of expectation of familiarity with media, which must be met to sustain membership in specific social groups.” (Baran & Davis 2009, p.241)

These could easily explain why patients go online for medical help. When a person has a certain disease or health problem, he or she needs to turn to the Internet to seek solutions in order to solve the problem. For instance, if a person sees a new medical product related to one’s health condition or problem on a billboard, but there is not enough information for that product on the billboard, he or she could go online to search for further information. Some immigrants or international students who live in remote areas may use the Internet to look for and communicate with health professionals in bigger cities; health professionals who live in the remote areas could use the Internet to update sources and communicate with other professionals. Moreover, immigrants and international students may use online support groups or social network sites to stay in touch with friends in their hometown and to be informed about big news happening in their countries.

Several studies also have revealed the motivations for people using the Internet, which include process gratification, content gratification and social gratification (Ko et al., 2005; Stafford et al., 2004). According to Ko and colleagues, Internet users who are highly information-motivated like to use human-message interaction; users who are highly social motivated like to use human-human interaction. Most people accessing online health information are information-motivated, so they need to fulfill their content gratification. It is possible that international students, who are alone in the U.S., need

more social support and have more social motivation when seeking online health information.

One of the strengths of uses and gratification theory is that it analyzes media use from an audience perspective (Baran & Davis, 2009); this fits into Internet use, especially Internet use for medical purposes, which involves more interaction and puts more control in the hands of patients. Similar motives in the literature for using the Internet include entertainment, information seeking, social interaction/interpersonal utility, convenience, surveillance, relaxation/escape and diversion to pass time (Foregger, 2011).

The use of media materials for "personal reference" may come from a need for self-esteem; social utility functions may be traced to the need for affiliation; and escape functions may be related to the need to release tension and reduce anxiety (Katz, Blumler & Gurevitch, 1974). This is consistent with the needs of international students: social support, relaxation, self-identity, self-concealment, etc. Wang and Sun (2009) found some new motives in Internet use among international students, such as social involvement, acculturation and ethnic maintenance. Hou and Shim (2010) found that the most important motive for seeking online information is that patients often found their experience in health care services to be less patient-centered.

The study used the uses and gratification theory to explain the motivations of using the Internet as a source for health information among college students. The theory explains different motivations and situations that college students seeking online health information. The study also explores the differences between native-born and international students regarding their motivations of accessing and using online health information.

The Staged Model of Trust

Many of previous studies have examined the trustworthiness of health websites by evaluating the quality of the information; this study examines trust from a user perspective. The staged model of trust developed by Briggs, Simpson, and Angeli (2004) offers a theoretical framework of how Internet users build their trust with health websites. According to Briggs et al., there are three stages of trust during the process of building trust with health websites, and most users searching for health information start with a search engine, then choose a website according to some superficial factors (Sillence, Briggs, Fishwick & Harris, 2007).

The first stage is a “heuristic” stage, during which trust is based on the first impression of health websites, including the visual appeal, layout of the content, etc. (Briggs et al., 2004). With numerous health websites found by the search engine, people have to choose according to some superior factors. For instance, many people have rejected health websites because the information appeared “sloppy or unprofessional” and the websites look too “commercial” (Pew, 2000). Mistrust also happens in this stage because users reject websites that were poorly designed, such as websites with pop-up surveys and poorly laid out information (Sillence, et al., 2004).

The second stage is an “analytic” stage where users engaged in further activities on health websites and started to analyze the content of information, including content level, source knowledge, etc. (Briggs et al., 2004). For instance, a few studies found that users reject websites when they found the source of the information is incredulous (Hesse et al., 2005; Luo & Najdawi, 2004; Pew, 2000). The language style and site purpose are also determining factors during this stage (Briggs et al., 2004); it is found that users reject health websites that have unprofessional language, too many products, etc. (Pew, 2000).

The third stage is a “subsequent relationship development and integration” (Sillence et al., 2004). During this stage users compare the information among different health websites and make decisions based on their previous knowledge, and also choose

websites according to how much the websites are personalized and interactive (Briggs, Burford, Angeli & Lynch, 2002; Sillence et al., 2004).

The model came out with some rules for determining the credibility and lack of credibility of health websites from an audience perspective, such as visual appearance and content analysis. Yet it did not examine whether the rules for trust were the same for people with limited health literacy and different cultural backgrounds. The current study will test the rules of the model and examine whether they are the same for students from different regional groups.

Research Questions

This study examines the access, use and trust of online health information among college students. It also analyzes the differences between international students and native-born students regarding the access, use and trust of the Internet for health purposes. In this respect, the study poses the following three research questions:

RQ1: Are there differences between international students and native-born students regarding health topics they accessed?

RQ2: Are there differences between international students and native-born students regarding the type of information they use for online health activities?

RQ3: Are there differences between international students and native-born students regarding the characteristics they used to determine the credibility and lack of credibility of health websites?

Chapter 3 – Methodology

The purpose of the study is to examine the access, use and trust of online health information between native-born students and international students. This chapter introduces the methodologies applied in the study, with detailed explanations on each method, sample selection process, instruments used for data collection procedure, and data analysis technique used in the study.

Quantitative Approach

Quantitative approach refers to research using numbers (Thomas, 2009), which has been defined as explaining phenomena by collecting numerical data that are analyzed using mathematically based methods (Aliaga & Gunderso, 2002). Quantitative approach is generally used for measuring social facts, especially attitudes and beliefs (Sukamolson, 2009), and had been differentiated from other approaches because of numerical forms of data from qualitative research (Trochim, 2005). According to Dorkreim (1938), a social fact is “every way of acting, fixed or not, capable of exercising on individual an external constraint; or gain, every way of acting which is general throughout a given society, while at the same time existing in its own right independent of its individual manifestations.” The study examines the access, use and trust of online health information among students, which are the daily attitudes and behaviors that could be viewed as social facts, which indicate that the nature of the study tends to be quantitative, and quantitative study is suitable for testing theories (Creswell, 2003). The quantitative approach could be used to examine the general facts and attitudes of online information among such a large group.

Online Survey Questionnaire

Quantitative study involves many materials, such as survey (Creswell, 2003). This study specifically relies on one of the most common materials of quantitative research in social science — survey questionnaire. Surveys are used to collect data to examine some

features in social situations that could not be manipulated (Thomas, 2009). In this case, how students usually access, use and trust online health information is a situation that could not be manipulated.

Therefore, this study used an online survey, with which respondents could use the Web browser to access. In this way, it is convenient for both the researcher and the respondents. The university provides free Internet access, so international students could use it to access the survey. Another advantage of online surveys is that it can also access unique population groups, such as people with physical disabilities and certain diseases (Wright, 2005). These populations are hard to reach by paper surveys, considering their inconvenience. In this case, students may feel more at ease and more relaxed since they can access the survey anywhere they want.

What's more, by using an online survey researchers do not have to spend time looking for a large group of a population and wait for their responses such as face-to-face interviews or other forms of self-administered questionnaires. This saves a lot time for both researchers and participants. Online survey questionnaires also save money by cutting printing costs and travel expenses.

Sample Description

The survey was administered to two groups of students: one is made up of native-born students and the other with international students. The samples for both groups were drawn from enrolled students at Kansas State University. According to the International Student Center at Kansas State University, the school has approximately 23,500 students enrolled, including about 1,900 international students from 91 countries, including Asian, European, African and Latino countries. A total of 255 students responded to the survey, including 120 native-born students and 135 international students, in which 53 (20.8 percent) were from East Asia, 29 (12.9%) from South Asia, 11 (4.3%) from Europe, 10 (3.9%) from Central America, eight (3.1%) from South

America, seven (2.7 percent) from Africa, and six (2.4%) were from the Middle East; four students did not indicate their country of origin.

The group of international students was drawn from the listserv of the International Student Center; the listserv includes all the international students at Kansas State University. With regard to native-born respondents, a systematic sampling method was done using the campus phone book as a sampling frame. The researcher used the Kansas State University Campus Phone Book, which contains the contact information of all students enrolled in the current academic year, for random selection. All students are listed in alphabetic order by their last names. The researcher used systematic random sampling method by selecting every 10th student on each page (there are 100 students on every page). After that, the researcher deleted all the international students in that list.

Operationalization of Variables

Access of Online Health Information

There were three research questions in this study, and each of them was measured by two dependent variables with “international or native” as the independent variable. The first research question studied access of online health information. Two dependent variables — the frequency of accessing and topics of information accessed — were measured. The frequency of accessing variable asked respondents to report how often they go online to access health information, with responses including never, once every few months, once a month, once every week, two to three days a week, four to six days a week and daily.

The topics of information accessed variable asked respondents to rate the frequency of accessing the information on a 1-5 scale from 1 (never) to 5 (always). The topics included: nutrition, exercise, dietary, cancer, heart disease, tuberculosis, allergies, sexual/productive health and mental health.

Use of Online Health Information

The second research question studied the use of online health information. Two dependent variables were also measured — types of information used and health-related online activities used. For the types of information used variable, respondents were asked to check all that applied with choices of different types of health information. The types included: using information for a specific disease or medical problem; information about doctors or other health professionals; information for a certain medical treatment or procedure; information about hospitals or other medical facilities; information related to health insurance, including private insurance, Medicare or Medicaid; information for food/drug safety or recalls; information for a respondent's health or medical situation or someone else's health or medical situation; online information about a health topic that's hard to talk about, such as drug use, sexual health or depression; and information about general health care/disease prevention.

For the health-related online activities used variable, respondents were also asked to check all that applied with choices of different activities, including: read someone else's commentary or experience about health or medical issues on an online news group, website or blog; went online to find others who might have health concerns similar to the respondent's; tracked the respondent's weight, diet or exercise routine online; signed up to receive email updates or alerts about health or medical issues; watched an online video about health or medical issues; and posted comments, questions or information about health or medical issues in an online discussion, a listserv, or other online group forum.

Trust of Online Health Information

The third research question examined the trust of online health information; the degree of trust and rules determining the credibility and incredibility of health websites were tested. The degree of trust for online health information was measured on a 1-to-5 scale: 1 (never) to 5 (always). Respondents were asked to report their self-rated trust on the scale.

Credibility was measured by six statements, which was adopted from Pew Report (2010), on a 1-to-5 scale: 1 (strongly disagree) to 5 (strongly agree). The respondents were required to rate six statements on the scale, including: hearing the site from family, friends and coworkers; hearing about this source from other media sources (e.g. print media, television, radio); how far from the top of the list the website is listed in a set of search engine results; whether or not the website is supported by a government, university or research organization; whether or not the website contains accounts of personal experience; and the visual presentation of the website.

Lack of credibility was also measured on a 5-point scale, 1 (strongly disagree) to 5 (strongly agree), on six statements: the website of the information appeared sloppy or unprofessional; a respondent couldn't determine the source or author of the information; a respondent couldn't determine when the information was last updated; the information disagreed with the respondent's doctor's advice; and the site contained other information you knew to be wrong.

Instrument

A survey questionnaire was developed for this study. The survey questionnaire consisted of 31 questions; most of them were multiple-choice questions, and some were open-ended questions. The questions were designed based on the three research questions and aimed to examine three key variables: access of online health information, use of online health information, and trust of online health information. Some of the questions were adopted from the Pew Internet Survey Center. Participants were encouraged to be as honest as possible when answering the survey questions. Participants also were asked to give information about their gender, relationship status and ethnicity at the end of the questionnaire. This survey was anonymous; no identity information was asked during the whole process.

Data Collection Procedure

The questionnaire was posted online following the ethics approval by the Institutional Review Board (IRB) committee for research involving human subjects at Kansas State University. Permission was also sought from the International Student Center (ISC). The survey was sent to the international students' listserv, explained the purpose of the study, encouraged all international students to participate, and provided a link to the survey. This email was checked and sent out by the officer at ISC on behalf of the researcher to the more than 1,900 international students. The same email was also sent to native-born students. Four reminders were sent the following week.

All participants had to read the consent form, and then clicked on "start" to begin the survey or "close" to leave the page. Upon starting, participants entered a page that contained 31 survey questions; all participants could quit the survey at any time if they felt any discomfort. After completing all the survey questions, the system automatically recorded the results so the researcher could view and download the results at any time.

Data Analysis

After completing the data collection, all the results were translated into numerical forms and put into SPSS. The data were analyzed according to statistical methods in SPSS. Chi-square tests were performed for the topics of health information, and cross tabulation tables and chi-square test were used for the frequency of access and native-born/international groups, types of information used and native-born/international groups, health-related activities and native-born/international groups. Ancillary analysis of adjusted residual was also performed to compare the observed frequency with the expected value to reveal descriptives contributed the most to the chi-square. The comparison of means and tests of variance were also used to examine the differences of characteristics determine credibility and incredibility of health websites. Scheffe tests were also used to tell the biggest differences between means between the two groups.

Chapter 4 - Findings

The aim of this study is to understand the access, use and trust of online health information among college students. This chapter presents descriptive statistics of the sample, key findings and detailed information gathered after data analysis, organized according to the key variables with consideration of the three research questions.

Description of Sample

Of the 255 respondents, 120 (48.2%) of them were native-born students, and 135 (52.9%) were international students, among which 53 (20.8 percent) were from East Asia, 29 (12.9%) from South Asia, 11 (4.3%) from Europe, 10 (3.9%) from Central America, eight (3.1%) from South America, seven (2.7 percent) from Africa, and six (2.4%) from Middle East. There were four participants (1.6%) who did not wish to indicate their country of origin. Moreover, 133 (51.6%) of all participants were female, and 122 (48.4%) were male. For the relationship status, 106 (41.6%) respondents were single (not dating), and 149 (58.4%) were in a relationship.

For participants' self-rated health conditions, 63% of all participants rated their health as good, 30% rated excellent and 7% rated poor. Comparing the two groups, 36.6% of native-born students rated their health as excellent, and 58% rated good; for international students, only 24.6% rated their health as excellent, but 65.7% rated good. For those who rated poor, 64.7% were international students.

When asked about having a personal/family doctor or not, 139 (55.5%) of all participants had a family/personal doctor and 116 (45.5%) did not. For native-born students, 92 (76.7%) out of 120 had a personal/family doctor; for students from other regions, only 24 (17.8%) out of 135 had a family/personal doctor.

Types of insurance differed between native-born students and international students. For native-born students, 82 (68.33%) out of 120 respondents received insurance from their parents, and 17 (14.2%) received insurance from their jobs. However, for international students, 121 (89.6%) out of 135 respondents had student insurance.

There were 11 respondents (4.31%) who did not have any insurance, and all of them were native-born. For respondents who had student insurance, 70 (56.9%) out of 125 agreed or strongly agreed that their insurance did not cover enough. Seventy (46.3%) out of all respondents were not sure about what their insurance actually covers. There were 197 (77.3%) out of 255 students who agree or strongly agree that the cost of health care is very expensive.

When comparing the use of health services and the experience of visiting health professionals, 99 (82.5%) percent of native-born students felt good when seeing a doctor or nurse, and 62 (45.9%) international students felt good about it. The biggest problem for international students is that they thought it was hard to describe their symptoms to doctors; 38 (28.1%) students said they have difficulty describing their symptoms to a doctor. There were 19 out of 255 respondents who do not like to do body examinations, of which 14 (73.7%) were native-born students.

Access of online health information

The first research question focused on differences in accessing online health information between international students and native-born students. The variables were frequency of access and health topics that are accessed.

Frequency of accessing online health information

Respondents were asked to report their frequency of accessing online health information by choosing from once a year to daily. Of the 255 participants, 227 (89%) respondents had accessed online health information, among which 159 (70%) students accessed online health information once every few months, and 39 (17.2%) accessed online health information once every month. There were 43 (32.3%) out of 133 females who accessed online health information at least once a month to daily, compared with 25 (20.5%) out of 122 males.

Twenty-eight (10.9%) students never accessed health information online. There were 30 (25%) out of 120 native-born students who accessed online health information at

least once a month to daily; 36 (26.7%) out of 135 international students accessed online health information at least once a month to daily.

The result of chi-square test of the difference of accessing online health information between international and native-born students shows that, although there were some differences, none was statistically significant. This means that the frequency of accessing online health information for international students and native-born students is similar, as most respondents (159) accessed online health information once every few months.

Topics of Health information Accessed

Different people may have different health concerns, so their needs for certain health information may also vary. The question asked about the kinds of information college students accessed; the topics include: nutrition, exercise, allergies, sexual/productive health, mental health, tuberculosis, cancer, dietary and heart disease, and all of them were measured on a 1-to-5 scale, from 1 (never) to 5 (always). Values 1-3 were coded as “rarely accessed”; values 4-5 were coded as “frequently accessed.” Table 1 is the cross tabulation table of health topics and number of international/native-born students who frequently accessed each topic.

Table 1: Health Topics

Topics	Students who Frequently Access		
	International	Native-born	Total
Nutrition	61	49	110
Exercise	0	0	0
Allergies	20	15	35
Sexual health	0	0	0
Mental health	14	24	38
Tuberculosis	0	0	0
Cancer	12	12	24
Dietary	0	0	0
Heart disease	10	7	17
Total	117	107	224

From table 1 we can see that the most frequently accessed topics of health information were nutrition. A total of 43.1% of all participants rated 4 or 5 on the scale, which means frequently accessed. And there were 14.9% of all respondents who frequently accessed information about mental health, 13.7% frequently accessed information about allergies, 9.4% frequently accessed information about cancer and 6.7% frequently accessed information about heart disease. Other topics including exercise, sexual/productive health, tuberculosis and dietary were rarely accessed by both international and native-born students.

There is a significant difference between the health topics, $\chi^2=304.572$, $df=8$, $p<.001$ ($\alpha=.05$). And the value that contributes most to the chi-square is the topic of nutrition, which means that both international and native-born students accessed information about nutrition much more frequently than expected compared with other topics. We can conclude that nutrition is the most highly concerned health topic among college students.

The result of chi-square test shows that none of the differences between the frequencies that international and native-born students in frequency accessed those topics is significant. This indicates that international and native-born students accessed all the topics with similar frequency.

Use of Online Health Information

The second research question asks how students use online health information that they access. To reveal the answer to this question, two variables were also tested by the two groups: the information they use and the kind of health-related activity they do online.

Types of Information Used

There are various reasons why people use the Internet as a source of health information, regarding the types of information they used. The question asked about the types of online health information they have used, and respondents were asked to select

all that apply. The results showed that 186 (73.5%) out of 255 respondents had used information for a specific disease or problem, making it the most common reason; 142 (55.7%) respondents had used information for a certain medical treatment or procedure; 141 (55.3%) respondents had used information for their own health or medical situation or someone else's health or medical situation; 112 (43.9%) had used information for health topics that were hard to talk about; 106 (41.6%) had used information for food/drug safety; 91 (35.7%) had used information for disease prevention; 82 (32.2%) had used information about doctors or health professionals; 82 (32.2%) had used information related to insurance; and 69 (27.1%) had used information about hospitals.

Ancillary analysis of adjusted residual was performed to pinpoint where the model of independence breaks down. The analysis compares the observed frequency with the expected value to reveal descriptives that contributed the most to the chi-square. The adjusted residuals are approximately normally distributed; they can be compared to the percentiles of the normal distributor. However, the tests constitute a post hoc analysis; an adjustment to the alpha level was made to correct possibility of a Type I error. The alpha level was reset to $p \leq .01$. The alpha level changed the critical value to 2.33.

The result of chi-square test showed there is a significant difference between international and native-born students regarding the types of information they used, $\chi^2=18.898$ $df=8$, $p=.015$ ($\alpha=.05$). Table 2 is the cross tabulation table and the ancillary analysis of different types of health information and international/native-born students.

Table 2: Types of Health Information

Types		Students		Total
		International	Native-born	
Specific disease	Count	97	89	186
	Adjusted Residual	0.3	-0.3	
Doctors	Count	41	41	82
	Adjusted Residual	-0.2	0.2	
Medical treatment	Count	70	72	142
	Adjusted Residual	-0.5	0.5	
Hospitals	Count	39	30	69
	Adjusted Residual	0.9	-0.9	
Insurance	Count	55	27	82
	Adjusted Residual	3	-3	
Food/drug safety	Count	57	49	106
	Adjusted Residual	0.6	-0.6	
Medical situation	Count	62	79	141
	Adjusted Residual	-1.8	1.8	
Hard to talk topics	Count	45	67	112
	Adjusted Residual	-2.5	2.5	
Disease prevention	Count	51	40	91
	Adjusted Residual	1	-1	
Total	Count	517	494	1011
	Expected Count	517	494	1011

As Table 2 shows, the values that contribute most to the chi-square are information about insurance and health topics that are hard to talk about. The results of ancillary analysis indicated more international students accessed information related to health insurance than expected compared with native-born students (adjusted residual=3). International students have a higher concern about insurance than native-born students. It is possible that international students used online health information related to insurance to learn what their insurance covers and to better use it in daily life.

The results also reveal that international students accessed information about health topics that are hard to talk about much less than expected compared with native-born students (adjusted residual=-2.5). Native-born students used online health

information when their needs could not be fulfilled somewhere else. For instance, when they had private and sensitive health issues, they did not want to talk to doctors; instead, they went online to use online sources because the Internet is convenient and anonymous.

Health-Related Online Activities

There are kinds of health-related activities people can do online, such as online support groups, self-management tools and personal health care records. The question asked about certain kinds of activities students have ever done. Six statements were listed, and respondents were asked to select all that apply. Table 3 is the cross tabulation table of different activities and students.

Table 3: Health Related Activities

Activities	Students		Total
	International	Native-born	
Read comment	65	66	131
Find similar concerns	62	54	116
Track weight	47	49	96
Sign up emails	17	12	29
Watch video	49	41	90
Post comments	13	12	25
Total	253	234	487

Table 3 shows that the most common health-related online activity was reading someone else's commentary or experience about health or medical issues on an online news group, website or blog, (131 out of 255, or 51.4%). There were 131 (51.4%) respondents who had read someone else's commentary or experience about health or medical issues on an online news group, website or blog; 116 (45.5%) respondents had gone online to find others who might have health concerns similar to theirs; 96 (37.6%) respondents had tracked weight, diet or exercise routines online; 90 (35.3%) respondents watched an online video about health or medical issues; 29 (11.4%) respondents had signed up to receive updates about health or medical issues; and 25 (9.8%) respondents had posted comments, questions or information about health or medical issues.

There is a significant difference among each activity that all respondents did, $\chi^2=121.54$, $df=5$, $p<.001$ ($\alpha=.05$). The values that contribute most to the chi-square are: reading someone else's commentary or experience about health or medical issues on an online news group, website or blog; signing up to receive updates about health or medical issues; and posting comments, questions or information about health or medical issues. This means that the number of respondents who had read someone else's commentary or experience about health or medical issues on an online news group, website or blog is much more than expected, and the number of respondents who had signed up to receive updates about health or medical issues and posted comments, questions or information about health or medical issues are much fewer than expected.

The results indicate that both native-born and international students like reading others' comments, experiences or news about health issues the most, while, at the same time, they do not like to post comments, questions or information. This indicated that college students did not involve themselves in the process of health communication much for interaction; they just like to be message receivers. Their participation of health-related activities online were rather passive than active.

The results of the chi-square test on the types of information used between international and native-born students indicate that there is no statistical difference between international and native-born students with regard to the health-related activities they did online. We can conclude that native-born and international students' online health-related activities are similar.

Trust of online health information

The third research question examined how college students choose trustworthy health websites and health information. Two variables — the average level of trust and the credibility and lack of credibility of health websites — were measured with regard to both native-born students and international students.

The Average Level of Trust

The question asked respondents how much they think they can trust online health information they have accessed, and the level of trust was measured on a 1-to-5 scale, from 1 (never) to 5 (always). More than half (58.4%) of the respondents held a neutral view for trusting online health information; 149 respondents rated 3 on the 1-to-5 scale. None of native-born students rated either 1 or 5 on the scale, while there were five international students who rated 1 and two rated 5.

The result of t-test variance shows that the average level of trust for online health information between international students ($M=2.95$, $SD=.645$) and native-born students ($M=3.07$, $SD=.756$) is not significantly different. This means that both international and native-born groups' views toward the trustworthiness of online health information are neutral.

The credibility of health websites

There are some characteristics of certain health websites that make people trust them. For the characteristics that determine the credibility of a health website, six statements were measured on a 1-to-5 scale, from 1 (strongly disagree) to 5 (strongly agree). Values 1 to 3 were coded as disagree/neutral, while values 4 and 5 were coded as agree. Table 4 is the cross tabulation table of characteristics that determine the credibility of health websites and students who agree.

Table 4: Credibility Characteristics

Characteristics	Students who Agree		Total
	International	Native-born	
Hearing from family/friends	65	52	117
Hearing from other media	51	49	100
Listed in searching	37	51	88
Support by organizations	81	97	178
Personal experience	40	33	73
Visual appearance	30	40	70
Total	304	322	626

As table 4 shows, the most highly rated characteristic is “if the website is supported by health organizations, research organization or universities,” with 69.8% rating a 4 or 5 on the scale, which means agree. There were 45.9% respondents who agreed that “hearing the website from family/friends” determines credibility of a health website; 39.2% agree that “hearing from other media” determines credibility; 34.5% agree that “how far the website was listed from the top in the search results” determines credibility; 28.6% agree that “if the website contained amounts of personal experience” determines credibility; and 27.5% agree that “visual appearance” is important to determine the credibility of a health website.

There is a statistically significant difference between the characteristics that determine the credibility of health websites, $\chi^2=77.01$, $df=5$, $p<.001$ ($\alpha=.05$), and the value that contributes most to the chi-square is “if the website is supported by health organizations, research organization or universities,” which means respondents had a significantly higher rating for the characteristic than expected compared with other characteristics. It is possible to conclude that “if the website is supported by health organizations, research organization or universities” is the most important characteristic of credibility of health websites among college students.

According to the chi-square test result, the differences between international and native-born students on the characteristics that determine the credibility of a health website is not significant, which means that the evaluation of the characteristics is similar between the two groups of students.

Some participants (33, or 12.9%) gave further comments on characteristics that affect their choice of trustworthy health website, such as the credibility of the source, whether it is recommended by their doctors, and user's rating about the websites, etc.

There are also characteristics of health websites that make users turn away from them. For the characteristics that determine the lack of credibility of health websites, six statements were also measured on a 1-to-5 scale, from 1 (strongly disagree) to 5 (strongly agree). Values 1 to 3 were also coded as disagree/neutral, while values 4 and 5 were coded as agree. Table 5 is the cross tabulation table of characteristics that determine the incredibility of health websites and students.

Table 5: Lack of Credibility Characteristics

Characteristics	Students who Agree		Total
	International	Native-born	
Sloppy/unprofessional	85	85	170
Lack of source credibility	89	89	178
Not updated recently	70	71	141
Too commercial	90	86	176
Disagree with doctors' advice	48	52	100
Information you knew to be wrong	68	84	152
Total	450	467	917

As table 5 shows, 69.8% of all respondents thought “you could not determine the source of the information” is an important factor in determining the lack of credibility of health websites; 69% agreed that “if the website was too commercial and more concerned about selling products” is important; 66.7% agreed that “the website appeared sloppy or unprofessional” is important; 59.6% agreed that “if the website contained information

you knew to be wrong” is important; 55.3% agreed that “you could not determine when the information was updated” is important; and 39.2% agreed that “the information disagreed with your doctor’s advice” is important to determine the incredibility of health websites.

There is a significant difference between the characteristics, $\chi^2=28.77$, $df=5$, $p<.001$ ($\alpha=.05$). The value that contributed the most to the chi-square was “the information disagreed with your doctor’s advice,” which was the least agreed value; this means that many fewer respondents agreed about the characteristic than expected compared with other characteristics. The result shows that college students rate lack-of-source credibility as the most important value to determine the lack of credibility of health websites, while doctors’ advice as the least important one.

None of the differences between international students and native-born students was significant except the characteristic “if the website contained information you knew to be wrong,” $\chi^2=10.167$, $df=1$, $p=.001$ ($\alpha=.05$), which indicates that more native-born students agree that it is important to determine the lack of credibility of health websites.

Fifteen participants (5.9%) shared characteristics they think determines the lack of credibility of a health website, including the information on the website is not recently updated, if the website uses gimmicks to draw users, and websites that seem so unrealistic about healing.

Chapter 5 - Discussion, Conclusion and Recommendations

This study examines the extent to which college students accessed health information, how they used that information, and how they determined what online sources were trustworthy. In this chapter, detailed discussions drawn from findings and previous studies were presented under each of three research questions. In addition, the study provides recommendations to health organizations and universities in understanding the differences between native-born and international students, so future health communication campaigns could better target both groups. Conclusions and study limitations are also addressed in this chapter.

The first research question asked what kind of health information students accessed and the different health topics accessed by international and native-born students. Results of testing the variable “accessed health topics” revealed that the most frequently accessed topic of health information is nutrition, followed by allergies and mental health; whereas exercise, sexual health, tuberculosis and dietary received the least access. There was a significant difference between the frequency of accessing information about nutrition and other health topics, which means that many more students frequently accessed information about nutrition than expected compared with other topics. This finding is in line with previous studies (e.g. Fox & Fallows, 2003; Pew Report, 2000) that found the most frequently accessed health information to be nutrition. There is a concern in previous studies that college students have poor eating habits and that they are too busy to obtain healthy and nutritious meals (Brevard & Ricketts, 1996). Because there are various tools and nutrition programs online that could help students gain better eating habits (Cousineau, Goldstein & Franko, 2004), it is possible that college students can access information about nutrition and use tools to learn healthy eating habits.

The results of testing the variable “frequency of access” showed that there was no significant difference between international and native-born students with regard to the frequency of accessing online health information. And the largest percent of all respondents said they accessed online health information once every few months. About

89 percent of respondents had accessed online health information, this percentage is higher than the results of other studies (Escoffery et al., 2005; Pew, 2010). One possible explanation is that many universities provide free Internet access so college students have easy access to online health information.

The second research question examined how students use online health information. The testing results of the variable “types of information used” showed that using information for a specific disease or problem was used by the largest percent of all respondents. This finding is consistent with the Pew Internet report, where 63% of that sample (2,038 adults) had used information for a specific disease or problem (Pew, 2000). This indicated that college students who seek online health information are goal-oriented — they use online health information for a specific purpose.

The results of the chi-square tests showed that the differences about using online health information for insurance between international students and native-born students were significant. More international students had used information for insurance than expected when compared with native-born students. This indicated that international students are more concerned about information related to their insurance. Previous studies had found that ethnic minorities are more likely to be uninsured (Ku & Matani, 2001; Pol et al., 2002; Shin et al., 2005), while in this study it was found that most international students do have insurance, and most all them received students insurance as required.

Another significant difference was found for using online health information for health topics that are hard to talk about. Native-born students were more likely to use online information for health topics that are hard to talk about than expected compared with international students. Previous researches had found that the Internet is good for those who are seeking health information about private topics (Klein and Wilson 2003; Williams et al., 2003). These sensitive and private topics for college students include mental health, alcohol/drug use and sexual health (Lee et al., 2002), which previous students have found to be the most common health problem of American college students (Kitzrow, 2003; O’Malley & Johnson, 2002; Wechsler et al., 2002). This finding also correlates with another finding in this study that native-born students accessed

information about mental health more frequently than international students, since mental health is a topic that is hard to talk about.

Regarding the results of testing the variable “health-related online activities,” the researcher found that the most common health-related online activity among college students is reading someone else’s commentary or experience about health or medical issues on an online news group, website or blog, which showed a significant difference from other activities. And the least popular activity is posting comments, information and questions of health issues, which also showed a significant difference from other activities. The findings indicate that college students’ attitude toward health-related activities online are more passive than active. They like to receive messages rather than publishing and interacting. A study by Ecoffery and colleagues (2005) found that 80% of their respondents, which were all college students, got health information online, but only one-third would like to participate in online health programs.

The third research question asked how students choose trustworthy health websites and different characteristics international and native-born students use to evaluate health websites. By testing the variable “level of trust,” the study revealed that most college students held a neutral view toward the credibility of online health information. The result of the chi-square test indicated that the difference of the level of trust between the international students and native-born students was not significant.

For the characteristics that determine the credibility of a health website, the results showed that “if the website is supported by a government, university, or research organization,” which could be viewed as source credibility, is the most important characteristic for college students. This is also in line with previous studies that authorization affects Internet users’ trust and evaluation of reliability for websites (Zhong & Bhargava, 2002); other studies found that source expertise is also important in determining the credibility of health websites (Cline & Haynes, 2001; Eastin, 2001; Ecoffery et al., 2005; Rice & Katz, 2001; Risk & Dzenowagis, 2001). The results of the chi-square test also showed that many more students agreed with it than expected compared with other characteristics. According to Ecoffery and colleagues (2005), the accuracy, credibility, currency and ease of understanding of health information are more important than the navigation and visual appearance of health websites.

For evaluation of the lack of credibility of health websites, “you could not determine source of the information” was the most important. This result is the same as the one that determines the credibility, from which we can see the importance of source credibility among health information seekers. Another significant characteristic is “if the website was too commercial and more concerned about selling products.” This was also showed in Fox and Rainie’s (2002) study, where 47% of health seekers turned away from a health websites if the site was too commercial and seemed more concerned with selling products than providing accurate information.

Implications

Theoretical Implications

This study used the uses and gratification theory proposed by Blumler J.G. & Katz, E. (1974), and the results were largely consistent with prior studies that college students seeking online health information are goal-orientated, which means they access online health information with a motivation of information (Ko et al., 2005; Stanford et al., 2004). The study found that many students used online health information for a specific disease or health problem. This confirms the assertion of Baran and Davis (2009) that there are some situations where people turn to media to fulfill their need of gratification. Ko and colleagues (2005) asserted that people who are information-motivated are more likely to use human-message interaction. Based on the findings from the current study, the most popular health-related activity among college students is reading others’ comments, which is a by itself a human-message interaction.

In spite of the applicability, uses and gratification theory did not address the difference between people with various backgrounds. The current study found that although both native-born and international students access online health information with the same motivation of information, they use online health information under different situations. International students use online health information when they are having a problem or are confused. Native-born students use information for health topics that are hard to talk about, which indicates that they use the Internet as their source of health information when their need for information could not be gratified somewhere else.

This study also tested the staged model of trust, and the results confirmed prior research that college students build their trust with health websites by evaluating some characteristics of the websites (Briggs, Burford, Angeli & Lynch, 2002; Sillence, et al., 2004). In addition, the study adds to literature that people with different backgrounds may depend on different characteristics for evaluation. Both native-born and international students regard source credibility as the most important to determine the credibility of health websites. Also, many more native-born students thought source credibility is important than expected compared with international students.

Practical Implications

This study provides insightful recommendations for health organizations. First, health organizations should be aware of the need for information about some common health problems. It is obvious that students are most highly concerned with nutrition, so health organizations should design campaigns or use online health communication to deliver more information about nutrition and healthy eating habits. Health organizations should also pay attention to the different motivations of native-born and international students when using health communication. For instance, native-born students turn to the Internet for information when their need for information could not be fulfilled in other ways, while international students use online health information under the situations of having a health problem or concern.

Second, the study examined the characteristics that determine the credibility (and lack of it thereof) of health websites. This is important component in health communication particularly in determining how to use the internet in information dissemination. Results show that URLs of a health website that ended with .org or .edu were found to be more trustworthy than a health website that ended with .com. This implies that association with government organizations and academic institutions is important for credibility of health communication agencies.

Moreover, sponsorships of health websites by credible organizations would make them more trustworthy. For example, there could be a slogan that indicates they are authorized or supported by those organizations at a conspicuous area, such as beside the title of the website on the main page. This allows users to build their trust immediately by entering the website. Health websites should also pay attention to the source of the

information they provide. If the source of their information was from health organizations, research organizations, government or universities, it would increase the websites' credibility among users. On the other hand, health websites should avoid having too many ads and information regarding products. Student users may think the website is too commercial and unprofessional and does not focus on providing helpful information.

Conclusions

Several conclusions can be made from the study. With regard to access of online health information, a higher percentage of college students had accessed online health information than other adult Internet users. This indicates that the Internet is a suitable channel to deliver health information to college students. There is a need for information about nutrition among college students, as it was the frequently accessed by students. Different topics of online health information were accessed between international students and native-born students, highlighting health disparities between the two groups. Native-born students are more likely to use information about sensitive health topics than international students.

The use of online health information also varies between international students and native-born students. Both international students and native-born students access online health information with a motivation of information-seeking, but they use it in different situations. International students use online health information when they are under conflict and problematic situations, such as when they are not clear about their insurance or worried about a health problem. For native-born students, they used information for health topics that are hard to talk about more than international students, which means they used online health information as a way to fulfill their need when it could not be fulfilled in daily life.

The differences of health-related online activities between international students and native-born students were not significant. It should be noticed that college students' attitude toward health-related activities online is rather passive than active; they are likely to be information receivers rather than publishers. However, college students should be more active and encouraged to be involved in the interactive process of health communication.

College students have neutral viewpoints for the trustworthiness of health websites. To determine the credibility of health websites, college students put a lot of trust in source credibility. Both groups of students showed that a credible source of information adds trustworthiness to health websites, while the lack of a credible source decreases the credibility of health websites. Health websites should pay attention to the credibility of their sources when they publish health information.

The researcher suggests that more studies should focus on how health communication affects international students, as a minority group, with consideration of the above conclusions. Moreover, further studies could compare different ethnic groups within international students with a larger sample in each group. Future studies could also include gender and age as factors to measure the differences, with attention to the limitation of the sample. It would be very interesting to import gender and age as measurements along with regions.

Limitations

The study had a few limitations related to the sample, data collection time and financial resources. All the respondents of the study were students from a Midwestern university, which gave this sample a geographical limitation. The sample may not be representative of all native-born students and international students in the U.S. Moreover, the respondents of this study all have access to the Internet; the university provides computers and free Internet access on campus, students could access health information easily. The results may be different for those who do not have Internet access.

Another limitation is the diversity of international students in the sample. They all came from different regions, with different backgrounds and different health problems. They are a heterogeneous population, which often is a problem in this kind of research. It is hard to categorize students from Europe, Asia, Africa, North America and the Middle East in one group because they are completely different. Although the percentage of larger regional groups in the sample are in line with the percentage of international students in the U.S., the numbers of international students from some regions are too small. For instance, only six respondents were from the Middle East, seven are from Africa and eight are from South America. The numbers are not large enough to represent all students from these regions.

Using self-reported data is another limitation for this study. The questions asked respondents to rate the factors that determine the credibility and lack of credibility of health websites. However, respondents may have had to guess and imagine when they were answering, because there was no example given. It may be better to use the experiment method to test the trust of online health information, along with a survey to test access and use.

Using uses and gratification theory is another limitation. Uses and gratification theory neglected some possible effects. It was found that audiences' gratification is also related to some media effects including attitude, knowledge, etc. (Baran & Davis, 2009). Uses and gratification theory was also thought to be "too oriented toward micro-level," which makes it hard to draw or generalize a conclusion above individualistic level (Baran & Davis, 2009).

Last but not least, the researcher did not compare the differences of age and gender of respondents. It would be interesting to examine the differences between males and females and students of different age groups in the results and discussions.

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Appendix – Questionnaire

Page 1

Question 1 **** required ****

How long have you been in the United States?

☐ Less than one year

☐ One to two years

☐ Two to three years

☐ Three to five years

☐ More than five years

☐ Native-born

Question 2 **** required ****

In general, how would you rate your own health?

☐ Excellent

☐ Good

☐ Only fair

☐ Poor

Question 3 **** required ****

Do you have a personal or family doctor, or other health care professional such as a nurse that you usually rely on if you need medical care?

☐ Yes

☐ No

Question 4 ** required **

How many times did you go to see a doctor in the last 12 months?

- ☐ Never
- ☐ Less than 3 times
- ☐ 3 to 10 times
- ☐ More than 10 times

Question 5 ** required **

To what extent do you think the information you get from health professionals helpful relate to your illness?

- ☐ 1 (Not at all)
- ☐ 2 (A little bit)
- ☐ 3 (Somewhat)
- ☐ 4 (Very much)
- ☐ 5 (Extremely)

Question 6 ** required **

What problem, if any, do you have when you see a doctor or nurse in the U.S., please select all that apply:

- ☐ I feel good about it.
- ☐ It is hard to describe my symptoms in the way that doctors could not understand.
- ☐ I feel the treatments were not effective.
- ☐ I don't understand what the doctor or nurse wants me to do.
- ☐ I don't understand the technical languages used by the doctor or nurse.
- ☐ I don't like to have body examinations.

☐ Other:

Question 7 ** required **

What kind of health insurance do you have?

☐ student insurance

☐ job insurance

☐ insurance from my parents

☐ I do not have any health insurance

☐ Other:

Question 8 ** required **

What do you think about the cost of health care

1 - Strongly disagree | 2 - Disagree | 3 - Neutral | 4 - Agree

5 - Strongly agree

	1	2	3	4	5
8.1 The cost of health care is very expensive	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.2 My health insurance does not cover enough	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.3 I am not sure what my health insurance covers	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
8.4 I can afford the cost of health care	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question 9 ** required **

When you have some health problems, who would you FIRSTLY turn to for help?

☐ Family/ Friends

☐ Doctors/ Health professionals

☐ Internet

☐ Other:

Question 10 ** required **

From which of the following do you usually access internet? Please select all that apply.

☐ Home

☐ Workplace

☐ Public library

☐ School

☐ Café/restaurant

☐ Other:

Question 11 ** required **

When you have a health problem at what point do you usually go online for health information?

☐ Before seeing the doctor

☐ After seeing the doctor

☐ Both

☐ Other:

Question 12 ** required **

How often do you go online to get health information?

☐ Never

☐ Once every few months

☐ Once a month

- ☐ Once a week
- ☐ 2-3 times every week
- ☐ 4-6 times every week
- ☐ Daily

Question 13 ** required **

Which of the following website do you usually go to for health information? Please rank the TOP 3

- Web MD
- CDC (Centers for Disease Control)
- Social network (facebook, twitter, etc)
- Yahoo Health
- Medicine Net
- Mayo Clinic
- Drugs
- Everyday Health
- Wrong Diagnosis
- Med Help
- Health Grades
- NIH (National Institutes of Health)
- Official website of health organizations and hospitals
- Google search
- None of above

Question 14 ** required **

Please indicate any specific health issue/disease you have accessed online.

**1 - Never | 2 - Few times | 3 - Sometimes | 4 - Most of the time
5 - Always**

Question 15 ** required **

Now, we'd like to ask if you've looked for information online about specific health or medical issues.

Specifically, have you ever looked online for: (Please select that apply)

	1	2	3	4	5
14.1 Nutrition	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.2 Exercise	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.3 Allergies	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.4 Sexual/reproductive health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.5 Mental health	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.6 Tuberculosis	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.7 Cancer	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.8 Dietary	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14.9 Heat Disease	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

☐ Information about a specific disease or medical problem

☐ Information about doctors or other health professionals

☐ Information about a certain medical treatment or procedure

☐ Information about hospitals or other medical facilities

☐ Information related to health insurance, including private insurance, Medicare or Medicaid

- ☐ Information about food/drug safety or recalls
- ☐ Information related to your own health or medical situation or someone else's health or medical situation
- ☐ Information online about a health topic that's hard to talk about, like drug use, sexual health, or depression
- ☐ Information about general health care/ disease prevention
- ☐ Other:

Question 16 ** required **

Apart from looking for information online, there are many different activities related to health and medical issues a person might do on the Internet. The following is a list of online health-related activities you may or may not have done.

Have you ever: (Please select that apply)

- ☐ Read someone else's commentary or experience about health or medical issues on an online news group, website or blog
- ☐ Go online to find others who might have health concerns similar to yours
- ☐ Track your weight, diet or exercise routine online
- ☐ Signed up to receive email updates or alerts about health or medical issues
- ☐ Watched an online video about health or medical issues
- ☐ Posted comments, questions or information about health or medical issues...in an online discussion, a listserv, or other online group forum
- ☐ None of above
- ☐ Other:

Question 17 ** required **

Thinking specifically about what you have done on social networking sites like Facebook and Twitter

Have you ever: (Please select that apply)

- ☐ Used these sites to get health information?
- ☐ Used these sites to start or join a health-related group?
- ☐ Used these sites to follow your friends' personal health experiences or health updates?
- ☐ Used these sites to raise money or draw attention to a health-related issue or cause?
- ☐ Remember or memorialize others who suffered from a certain health condition?
- ☐ None of above
- ☐ Other:

Question 18 ** required **

Have you or has anyone you know been helped by following medical advice or health information found on the Internet?

- ☐ Yes
- ☐ No

Question 19

If you say YES to the Question 18, Please indicate the degree to which you say the information provided helped

**1 - Not at all | 2 - A little bit | 3 - Somewhat | 4 - Very much
5 - Extremely**

	1	2	3	4	5
19.1 Please indicate the degree to which you say the information provided helped	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question 20 ** required **

Have you or has anyone you know been harmed by following medical advice or health information found on the Internet?

☐ Yes

☐ No

Question 21

If you say YES to Question 20, Please indicate the degree to which you say the harm that the information cause

1 - Not at all | 2 - A little bit | 3 - Somewhat | 4 - Very much

5 - Extremely

	1	2	3	4	5
21.1 Please indicate the degree to which you say the harm that the information cause	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question 22 ** required **

1 - Never | 2 - Few times | 3 - Sometimes | 4 - Most of the time

5 - Always

	1	2	3	4	5
22.1 How much of the time do you think you can trust the health information you access online?	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question 23 ** required **

1	2	3	4	5
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In which of the following ways, if any, did the information you found online affect your own health care or the way you care for someone else:

1 - Strongly disagree | 2 - Disagree | 3 - Neutral | 4 - Agree
5 - Strongly agree

	1	2	3	4	5
23.1 The information you found online affect a decision about how to treat an illness or condition.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23.2 The information you found online change your overall approach to maintaining your health or the health of someone you help take care of.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
23.3 The information you found online lead you to ask a doctor new questions, or to get a second opinion from another doctor.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question 24 ** required **

Please indicate how important you think the following factors are in determining the credibility of a medical website.

1 - Strongly disagree | 2 - Disagree | 3 - Neutral | 4 - Agree
5 - Strongly agree

24.1 Hearing the site from family, friends and co-workers.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24.2 Hearing about this source from other media sources (e.g. print media, television, radio).	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24.3 How far from the top of the list the website is listed in a set of search engine results.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24.4 Whether or not the website is supported by a government, university, or research organization.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24.5 Whether or not the website contains accounts of personal experience.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
24.6 The visual presentation of the website.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question 25

Please share with us any additional factors you think are important in determining the credibility of a medical website:

Characters Remaining: 200

Question 26 **** required ****

We're interested in why people sometimes decide not to use health information they find online:

1 - Strongly disagree | 2 - Disagree | 3 - Neutral | 4 - Agree
5 - Strongly agree

1	2	3	4	5
---	---	---	---	---

26.1 The website of the information appeared sloppy or unprofessional.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26.2 You couldn't determine the source or author of the information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26.3 You couldn't determine when the information was last updated.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26.4 The site was too commercial and seemed more concerned with selling products than providing accurate information.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26.5 The information disagreed with your own doctor's advice.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
26.6 The site contained other information you knew to be wrong.	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Question 27

Please share with us any additional factors you think are important in determining the incredibility of a medical website:

Characters Remaining: 200

Question 28 **** required ****

What is your relationship status?

☐ Single (not dating)

☐ Dating someone

☐ Engaged

☐ Married

☐ Other:

Question 29

If you are in a relationship, is your significant other an American?

☐ Yes

☐ No

Question 30 ** required **

What is your sex?

☐ Male

☐ Female

Question 31 ** required **

What is your country of origin?

Characters Remaining:

50